



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/997,132	11/29/2001	Naoto Ohashi	SHC0159	5337

7590

08/25/2005

Micheal S. Gzybowski  
Butzel Long  
350 Main Street  
Ste 300  
Ann Arbor, MI 48104

EXAMINER

REICHLE, KARIN M

ART UNIT

PAPER NUMBER

3761

DATE MAILED: 08/25/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Tht

<b>Office Action Summary</b>	<b>Application No.</b>	<b>Applicant(s)</b>	
	09/997,132	OHASHI ET AL.	
	<b>Examiner</b>	<b>Art Unit</b>	
	Karin M. Reichle	3761	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) ☒ Responsive to communication(s) filed on 16 June 2005.
- 2a) ☒ This action is **FINAL**.                      2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) ☒ Claim(s) 1-12 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-12 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |   |   |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)             | 4) <input type="checkbox"/> Interview Summary (PTO-413)                     |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)    | Paper No(s)/Mail Date. _____  |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date _____   | 6) <input type="checkbox"/> Other: _____                                    |

## DETAILED ACTION

### *Claim Language Interpretation*

1. With respect to the last two subsections of claim 1, the claim terminology “at a lower portion of the ... core” alone does not require the zone be at or form the lowest or lowermost portion of the core nor be at or form the lowest half of the core nor that the zone only be at or form a lower portion, i.e. at least a portion of the zone just has to be at a portion of the core which portion is lower than another portion of the core. It is noted that the claim language as now amended still does not require the entire lower zone to be at or form the lowest or lowermost portion of the core nor be at or form the lowest half of the core nor that the zone only be at or form a lower portion. The added claim language only requires a “majority”, i.e. greater than 50%, of the superabsorbent particles of the zone be located in a lower half, i.e. lower 50%, of the core, i.e. only requires that some portion of the zone be in the lower half and that portion includes at least greater than 50% of the particles. “Non-discontinuous”, i.e. continuous, is defined as extending without interruption or cessation. “Gradient” is defined as “A rate of inclination; slope”. However, it is noted that the instant disclosure still does not set forth the specific rate of particle distribution or density in the thickness direction nor the rate or density which would be considered “non-discontinuous”. It is noted that even though the Figures of the instant application show a gradient, between each of the particles there is spacing from each of the other particles and what spacing or density per unit area would have to be present to be considered continuous or “non-discontinuous” has not been set forth. Therefore, the terminology “non-discontinuous” will be interpreted as including the particles being spaced by any distance.

Art Unit: 3761

Thus, the added claim language is interpreted as requiring the particles to be distributed so as to have a “non-discontinuous” density gradient in the thickness direction, i.e. the z-direction, which extends across an entire thickness of the zone. It is also noted that the entire thickness does not have to be the entire thickness of or across the entire width of the zone. The claim terminology “a higher concentration ... grooves” does not require the concentration of the particles of the zone to be highest in the vicinity of the at least one pair of grooves just higher in the vicinity than in at least some other portion of the zone. Therefore the last two subsections of claim 1 will be interpreted as requiring a core containing fibers and particles with particles being disposed in a single zone within the core which is coextensive with the width of the core and extends along the bottom of the at least one groove, at least a portion of the zone being at a portion of the core which portion is at least lower than another portion of the core and at least a portion to be in the lower half and include more than 50% of the particles, the particles being distributed so as to have a “non-discontinuous” z-direction gradient across the thickness of the zone in at least a portion of the width of the zone and wherein the particles in such zone are disposed so as to have a higher concentration within a vicinity of the at least one pair of grooves than in at least some other portion of the zone. It is further noted that the zone is not required to be a planar zone, i.e. it can be curved, nor have the superabsorbent uniformly distributed throughout. Claim 4 is interpreted as requiring some of the water absorbing fibers forming the core to form a layer therein which layer is in close contact with the topsheet and has a higher density than at least some other of the water absorbent fibers which do not form such layer. Claim 6 is interpreted as requiring a particle distribution gradient in the thickness direction of at least a portion of the zone/core, i.e. it is not required that the density only increase. Claim 9 is interpreted as requiring a particle

Art Unit: 3761

distribution density between the grooves higher than a density of at least a portion outside the grooves but not necessarily the highest density of the zone/core. With respect to claim 12 it is noted that the extent of the longitudinal center of the diaper compared to the remainder has not been set forth. It is also noted that the spacing is not required to be any specific dimension with respect to such extent of the longitudinal center, e.g. it does not have to extend the entire extent or could be greater than the entire extent, e.g. two grooves at opposite ends of the diaper only are spaced apart from each other in the center of the diaper. Finally it is noted with regard to claim 12 that the claim does not require that the spaced apart grooves be adjacent one another, e.g. could be spaced and have another groove or other grooves therebetween which are collinear or not collinear therewith. It is noted with regard to claim 10, line 2, “at least” should be --less than-- to be consistent with the description at page 8, third to last line of the substitute specification.

### ***Claim Rejections - 35 USC § 112***

2. Claims 1-12 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

A positive structural antecedent basis for “said...collinear grooves” on line 8 of claim 1 should be set forth, i.e. --collinear-- should also be added to line 7 before “grooves”.

***Claim Rejections - 35 USC § 103***

3. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

4. Claims 1-9 and 12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Rosenfeld et al '016 in view of Pieniak et al. '442, alone, or in the alternative also in view of Cole et al '104, and Toyoshima et al '118.

In regard to claims 1-3, 5, and 7-8: see Figures, especially 4-5 and 7-8, col. 1, lines 19-21 and 26-29, col. 2, lines 6-24, col. 2, line 57- col. 3, line 47, col. 5, lines 22-29 and 35-57, col. 6, lines 31-39, col. 6, line 58-col. 7, line 17, col. 7, line 55-col. 8, line 3, col. 8, lines 13-19 and 40-42, col. 9, lines 16-32, and 40-63, col. 10, lines 10-13 and 33-50 and col. 11, lines 49-53, e.g. in Figure 7, the topsheet is 72, the backsheet is 74, the core is 1, the grooves are 50, the groove bottom is 56, the groove walls are 54, the fibers are 14, and the particles are 16. Claim 1 now requires substantially all of said superabsorbent particles contained within the core be localized in a single "zone" at a lower portion of the core. Note again the Claim Language Interpretation section supra. Turning to Rosenfeld '016, such "zone" is considered the two adjacent superabsorbent concentrations, e.g. 10 and 64 in Figures 4 and 5, which have had grooves 50 compressed thereinto, e.g. as seen in Figures 4-5, which concentrations can be adjacently located at any number of "lower" portions of the core, e.g. in the locations of 10 and 64 in Figures 4 and 5. (It is noted that while the '016 reference calls the two adjacent superabsorbent containing portions first and second "zones", those portions are compressed to form the grooves 50 therein joining the superabsorbent containing portions together, see, e.g., layers 10 and 64 in Figures 4 and 5 adjacent the grooves 50, to form two nonmutually exclusive superabsorbent containing

portions with a superabsorbentless portion therein. '016 does not require the superabsorbent containing portions be discrete or mutually exclusive of each other but merely have superabsorbentless portions between at least some of superabsorbent containing portions.

Therefore, the structure of the claims does not distinguish over the Rosenfeld structure regardless of whether such structure is called first and second "zones" or a "zone". It is further noted however the Applicant's invention also includes superabsorbent containing portions and portions which are superabsorbentless therein, i.e. the fibrous portions between the superabsorbent and fiber containing portions. Therefore the structure of Rosenfeld is considered as much a "zone" as claimed as is Applicant's "zone"). Such "zone" of '016 can extend across an entire surface, i.e. length and width, of the core. The Rosenfeld device also includes the structure defined by the added claim language because the "zone" includes at least greater than 50% of the particles in the lower half and such particles have a "non-discontinuous", see Claim Language Interpretation section supra, density gradient in the Z-direction across an entire thickness of the "zone" of at least a portion of the width of the "zone", see Figure 5 for example. Applicant is also invited to compare Figure 3 of '016 which describes "discontinuous" zones with the zones of Figures 4 and 5 of '016. It is noted that claim 1 requires a higher concentration of particles within a vicinity of the at least one pair of grooves. This terminology has not been given a specific definition by Applicant so the usual or dictionary definition applies. See the Claim Language Interpretation section supra. Also, the American Heritage Dictionary defines "vicinity" as "The state of being near in space or relationship, proximity." In other words the term is relative. Thus, as, for example, shown in the Figures, a higher concentration of particles is shown around the grooves 50, see Figures cited supra. Thus the Rosenfeld et al device is deemed to teach a higher

Art Unit: 3761

concentration in “a vicinity” of the grooves as claimed. It should be noted that since Rosenfeld et al also teaches that the “zone” including the bottom of the grooves can be formed with a homogenous mixture of fibers and particles or a gradient, if an area of such “zone” is densified to form the channels 50, the area below such channels will have a higher density or concentration of particles and fibers per unit dimension than other of the uncompressed areas of such “zone”. It is also noted with regard to the claims 1-3, that the claims do not require direct joining between the portions of the grooves and the diffusive sheet and the diffusive sheet and the topsheet. Applicant did not provide a specific definition of the term “joining” so the usual or dictionary definition applies, i.e. could be direct or indirect attachment. Therefore, the Rosenfeld et al device includes all the claimed structure, as best understood, except for teaching an absorbent and diffusive sheet covering the core and thereby its joining to the polymer particles and topsheet along the grooves although it does teach the core can include a layer of tissue. However, see Pieniak et al, col. 10, lines 34-44, i.e. it is well known to wrap core in tissue to prevent dusting of particles and the tissue can thereby be joined to grooves of core, i.e. particles, and top sheet to enhance fit and aesthetics. To employ the tissue to wrap the core and join it to the grooves of the core as taught by Pieniak et al on the Rosenfeld device would be obvious to one of ordinary skill in the art in view of the recognition that it is well known to wrap the core with tissue to prevent dusting of particles and joining to the grooves of the core and topsheet would enhance the fit and aesthetics and the desire of such features in any absorbent article. It is also noted that such would necessarily improve the integrity of the core and col. 1, lines 19-21 and 26-29 of Rosenfeld. Figure 7 of Rosenfeld also shows a single nonplanar zone of particles coextensive with the width of the core.



The claims also now require at least one pair of collinear grooves (claims 1-7) or at least two pairs of grooves (claims 8-9) which form a pattern in which each pair of the grooves are aligned in and spaced apart from each other in the longitudinal direction. Rosenfeld at least teaches each of a pair of grooves, i.e. each of the grooves 50 in the middle of the article as seen in Figure 8, extending continuously in the longitudinal direction. Furthermore, while the instant specification discloses that the grooves 15 collect transversely flowing fluids to prevent leakage and spread such liquid longitudinally, it does not disclose the criticality of the groove pattern claimed, i.e. discontinuous grooves extending in the longitudinal direction over continuous grooves such as that shown by Rosenfeld. Also, Rosenfeld in addition to teaching the pattern discussed supra teaches there can be more than one pattern, i.e. embodiment of positioning, of the compressed channels or grooves 50, i.e. since it teaches “one embodiment” illustrated, infers other embodiments possible but not shown. It is noted that such compressed channels 50 would also inhibit the transverse flow of fluids and promote longitudinal spread of such fluids due to their shape, i.e. being longitudinally oriented at the sides of the article, and their densification. It is also noted that “channel” as set forth in Rosenfeld is defined by the dictionary as “A tubular passage for liquids” or “A course or passage through which something may be moved or directed”. Still furthermore, see Cole et al ‘104 at Figures 1-2 and 5B-C and col. 4, line 52-col. 5, line 17, and Toyoshima et al at Figures 1 and 7, col. 2, lines 3-4, col. 4, lines 6-8, col. 7, lines 40-42, col. 10, lines 4-7 and 41-61, i.e. interchangeability of an embossed groove pattern in which the grooves are continuous alone/and curved for a pattern in which the grooves are discontinuous alone/and straight. Therefore, to make the grooves of Rosenfeld discontinuous alone/and straight rather than continuous alone/and curved instead, if not already, such that they

include pairs of grooves which are aligned and spaced in the longitudinal direction as now claimed would be obvious in view of the interchangeability of groove patterns as taught by Cole et al and Toyoshima et al especially in view of the lack of disclosure of the criticality as discussed supra.

Claim 4: see col. 2, lines 57-63, col. 3, lines 32-37 and Figures cited supra. It should be noted that since Rosenfeld et al also teaches that the zone including the bottom of the grooves can be formed with a homogenous mixture of fibers and particles or a gradient, if an area of such zone is densified to form the channels 50, the area below such channels will have a higher density or concentration of particles and fibers per unit dimension than at least other of the uncompressed areas of such zones, i.e. layer of fibers exists at the bottom of each groove which has a higher density than at least some fibers which do not form each such layer, and will be in close contact with the topsheet.

Claims 6 and 9: See Figures cited supra, Claim Language Interpretation section supra and col. 3, lines 12-30 and col. 7, line 55-col. 8, line 6.

Claim 12: See discussion of the claims and the Claim Language Interpretation section supra. The discontinuous and straight groove pattern as taught by the prior art combination includes collinear grooves which are spaced from each other in the longitudinal center of the diaper.

5. Claims 10-11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Rosenfeld et al '016 in view of Pieniak et al. '442 and the Materials Handbook, alone, or in the alternative also in view of Cole et al '104, and Toyoshima et al '118.

Claims 10-11: see col. 6, lines 31-39 and 58-65 of Rosenfeld, i.e. core can contain 20% or less of synthetic “acrylic” fibers , “acrylic” as defined by the dictionary is “of acrylic resin” and an “acrylic resin” is defined as “any number of numerous thermoplastic or thermosetting polymers or copolymers of acrylic acid, methacrylic acid, esters of such acids or acrylonitrile”. Referring to the definition of “Acrylic Resins” in the Materials Handbook, such resins have melting points of 80 degrees C to 120 degrees C.

### ***Response to Arguments***

6. Applicant’s remarks have been considered but are either deemed moot in that the discussed issues have not been repeated or are deemed not persuasive because such arguments are narrower than the disclosure, the claim language and/or the prior art teachings as discussed above.

### ***Conclusion***

7. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37

Art Unit: 3761


CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any new grounds of rejection were necessitated by the amendments to claims 1 and 12.

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Karin M. Reichle whose telephone number is (571) 272-4936. The examiner can normally be reached on Monday-Thursday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Tanya Zalukaeva can be reached on (571) 272-1115. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

  
Karin M. Reichle  
Primary Examiner  
Art Unit 3761

KMR  
August 17, 2005